

REMARKS

Claims 6-12 and 14-22 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claims 10-18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Claim 10 has been amended herein to delete the "at least partly" language objected to by the Examiner.

Applicant respectfully traverses the assertion that claim 7 recites rotor limitations. On the contrary, claim 7 merely defines the widths of the recited permanent magnets and stator teeth as extending in a direction that corresponds to the direction of rotation of a rotor when the stator and rotor are embodied in a machine with the rotor mounted for rotation about the central axis. No rotor limitations are recited. Moreover, Applicant respectfully submits that the meaning of claim 7 is abundantly clear to those skilled in the art, and is therefore not indefinite.

Additionally, the Patent Office suggested that Applicant amend claim 17 to recite the first profile's end regions, rather than the second profile's end regions, as tapering inwardly. However, as shown in Fig. 12 and described on page 12 of the application, it is the non-magnet-bearing stator teeth that may have end regions which taper inwardly toward the inner peripheral edge of the stator frame to a greater extent than do end

regions of the magnet-bearing-stator teeth (the magnet-bearing stator teeth's end regions may or may not also taper inwardly toward the inner peripheral edge of the stator frame, but preferably to a lesser extent than the non-magnet-bearing stator teeth's end regions). In view of this explanation, Applicant respectfully submits that no amendment to claim 17 is required.

For these reasons, the Examiner is respectfully requested to reconsider and withdraw the § 112 rejection.

REJECTIONS UNDER 35 U.S.C. § 102

Claim 8 presently stands rejected under 35 U.S.C. § 102 as being anticipated by Nashiki (U.S. Pat. No. 6,081,083), or by Herron (U.S. Pat. No. 3,671,787), or by Shibayama et al. (U.S. Pat. No. 6,262,508). These rejections are respectfully traversed.

As amended herein, claim 8 now depends from claim 6. Given that claim 6 was not rejected under § 102 as being anticipated by Nashiki, Herron or Shibayama, it follows that claim 8 is also not anticipated by these references.

For these reasons, the Examiner is respectfully requested to withdraw the § 102 rejections.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 6, 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nashiki or, alternatively, Shibayama in view of Torok (U.S. Pat. No. 5,117,144). This rejection is respectfully traversed.

Claim 6 is amended herein into independent form, and now explicitly recites limitations of the former base and intervening claims. As such, the scope of claim 6 is unchanged.

Independent claim 6 recites a stator for use in a permanent magnet machine. The stator includes a plurality of stator teeth and a plurality of permanent magnets each located entirely within one of the stator teeth. Only every other one of the stator teeth have one of the permanent magnets located therein, and these permanent magnets have inwardly facing north poles. The suggested combination of Nashiki and Torok fails to yield this recited stator configuration, as does the alternative combination of Shibayama and Torok.

As noted on page 4 of the latest Office action, Nashiki fails to disclose a stator having permanent magnets in only every other stator tooth. In fact, Nashiki teaches away from such a configuration by providing a permanent magnet in each and every stator tooth, with these permanent magnets having alternating polarities. See, e.g., Fig. 9 of Nashiki.

The Patent Office contends it would have been obvious to modify the Nashiki stator by providing permanent magnets in only every other one of Nashiki's stator teeth, as allegedly taught by Torok. However, while Torok provides permanent magnets in only every other one of his stator teeth, these permanent magnets, like Nashiki's, have alternating polarities. See, e.g., Torok at column 2, lines 64-66 and especially Fig. 3. In other words, both Nashiki and Torok teach that mutually adjacent magnets should have mutually opposite polarities. Thus, even assuming, *arguendo*, that it would have been obvious to modify the Nashiki stator in the manner suggested by locating permanent

magnets in only every other one of Nashiki's stator teeth, these permanent magnets would still have alternating polarities as taught by both Torok and Nashiki. Therefore, in the suggested combination, the north poles of the permanent magnets in every other stator tooth would not all face inwardly, as recited by claim 6. For these reasons, the combination of Nashiki and Torok fails to render obvious independent claim 6 and claims 7-9 which depend therefrom.

The same conclusion applies to the alternative combination of Shibayama with Torok. Shibayama fails to disclose a stator having permanent magnets in only every other stator tooth and, in fact, teaches away from such a configuration by providing a permanent magnet in each and every stator tooth. See Figs. 3 and 4 of Shibayama.

Perhaps more significantly, Shibayama lacks any suggestion of orienting the permanent magnets in its stator teeth such that all north poles face inwardly. Although the Patent Office contends that Shibayama contains such a suggestion at column 4, lines 40-43, this is simply incorrect. At column 4, lines 40-43, Shibayama states that "[t]he permanent magnets 15, 16 are affixed so that their polarities are aligned identically in the radial direction for all the magnets." This merely means that all of the permanent magnets 15 in the stator teeth and all the permanent magnets 16 in the rotor teeth are oriented with their poles perpendicular to the radial axis of the motor, as shown in Figs. 3 and 4. Shibayama is clearly not stating, at column 4, lines 40-43, that the north poles of every permanent magnet 15 in the stator teeth and every permanent magnet 16 in the rotor teeth should uniformly face the same direction (e.g., outwardly or inwardly). Nor does Shibayama illustrate such polarities in his drawings. In fact, as best understood by Applicant, the Shibayama motor would not function properly if the

north poles of all such magnets faced the same direction. Regardless, however, it should be clear that Shibayama, like Torok, lacks any suggestion of providing permanent magnets in only every other stator tooth with the north poles of all such magnets facing inwardly, as recited by claim 6. Accordingly, the combination of Shibayama and Torok fails to render obvious independent claim 6 and claims 7-9 which depend therefrom.

Moreover, Applicant notes that it would not be a simple matter to, for example, substitute Torok's permanent magnet configuration for that of Nashiki's or Shibayama's. Instead, it appears the Patent Office has engaged in impermissible hindsight, using the instant application as a roadmap to piece together isolated disclosures in the prior art. This is clearly improper. For all these reasons, the Examiner is respectfully requested to reconsider and withdraw the § 103 rejection of claims 6, 7 and 9.

Claims 10-12, 14, 16 and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Torok in view of Shibayama. This rejection is respectfully traversed.

Independent claim 10 recites a stator for use in a permanent magnet machine. The stator includes a plurality of permanent magnets having inwardly facing north poles, a first plurality of stator teeth each having one of the permanent magnets located at least partly therein, and a second plurality of stator teeth each having no permanent magnets located therein. Independent claim 19 recites a similar stator with the further requirement that each of the first plurality of stator teeth are positioned directly between two of the second plurality of stator teeth. Thus, independent claims 10 and 19 each

recite stators having permanent magnets in some but not all stator teeth, and the north poles of these magnets all face inwardly.

As explained above in connection with the § 103 rejection of claim 6, Torok and Shibayama both lack any suggestion of providing permanent magnets in only a subset of the stator teeth with the north poles of all such magnets facing inwardly. Accordingly, the combination of Shibayama and Torok likewise fails to render obvious independent claims 10 and 19 and claims 11, 12, 14, 16, 18 and 20 which depend therefrom. Therefore, Applicant respectfully submits that the rejection of these claims should be withdrawn.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Torok in view of Shibayama and further in view of Nashiki. However, claim 15 depends from claim 10, and is therefore allowable for at least the same reasons as those presented above with reference to claim 10.

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Torok in view of Shibayama and further in view of Brammerio (U.S. Pat. No. 4,241,274). However, claim 17 also depends from claim 10, and is therefore allowable for at least the same reasons as those presented above with reference to claim 10.

For all these reasons, the Examiner is respectfully requested to withdraw the § 103 rejections.


CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests

that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7500.

Respectfully submitted,

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